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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/622,639	10/12/2000	Arnaud Hory	HORY 2.PCT/U	8500

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EXAMINER

FIORILLA, CHRISTOPHER A

ART UNIT	PAPER NUMBER
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1731

DATE MAILED: 12/04/2002

13

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/622,639

Applicant(s)

HORY ET AL.

Examiner

Christopher A. Fiorilla

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 19 September 2002.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 13-21 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 13-21 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

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1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

3. Claims 13-21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Feygin (5,354,414) in view of Deckard (5,639,070) and **Dictionary of Ceramic Science and Engineering** by O'Bannon for the reasons as set forth in the previous office action.

4. Applicant's arguments filed 9/19/02 have been fully considered but they are not persuasive.

With respect to the rejection of the claims under 35 USC 103 applicants argue:

FEYGIN does not disclose that the sintering is in solid phase. Even if FEYGIN uses the word "sintering", his use of the word does not correspond to the definition set forth in the Dictionary of Ceramic Science and Engineering and further his "sintering" is not that recited.

FEYGIN describes a sintering process in liquid phase. As shown in Fig. 27 and described in col. 11, lines 20-40 of FEYGIN, the powder particles 63 are bonded with the adhesive component 64. As described in column 15, lines 1-8 of FEYGIN, the process employs at least two materials with two different melting temperatures. FEYGIN uses more often the words “bond”, “fuse”, “glue”, and “adhesive” related to a sintering process in liquid phase.

Like applicants, FEYGIN tries to find a solution to reduce shrinkage in order to obtain pieces of precise dimensions. The solution of FEYGIN is different from applicants' solution. According to col. 6, lines 29-33 of FEYGIN “This problem can be overcome by creating thin walled boundaries encapsulating the material of the object during the laminating process and then postprocessing the object in a furnace”.

In sharp contrast to FEYGIN, applicants' claimed inventive process recites sintering in solid phase to obtain this solution.

These arguments are not persuasive. Col. 11, line 25 of FEYGIN recites that in some instances certain amount of liquid phase may be present indicating that liquid is not present in all embodiments of the disclosure. Figure 27 and col. 15, lines 1-8 are directed to examples where secondary materials are present. This is not required in all embodiments of FEYGIN. For example, col 15, lines 39-42 recite “Adhesives can be advantageously used as secondary materials in the LOM process”. Note further, col. 6, lines 4-5 of FEYGIN refers to “sintering or melting of the powder” which indicates that these occur in the alternative and a liquid phase is not necessarily produced.

FEYGIN does not describe heating the layer of powder prior to bringing it to the sintering temperature.

This argument is not persuasive. In response to applicant's arguments against the references individually, one cannot show nonobviousness by attacking references individually where the rejections are based on combinations of references. See *In re Keller*, 642 F.2d 413,

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208 USPQ 871 (CCPA 1981); *In re Merck & Co.*, 800 F.2d 1091, 231 USPQ 375 (Fed. Cir. 1986). A secondary reference was cited to teach this feature.

According to applicants' claimed invention, the ceramic powder or mixture of ceramic powders is heated before sintering to reduce the energy supplied by the laser for increasing the rapidity of production of the object.

DECKARD describes heating the layer of powder to be sintered prior to sintering.

At col. 6, lines 38-45, DECKARD specifies "Undesirable shrinkage of the article being produced has been observed to occur due to differences between the temperature of the particles not yet scanned...and the previously scanned layer. It has been found that the downward flow of controlled-temperature air through the target area is able to moderate such undesirable temperature differences."

DECKARD heats the powder not to reduce the energy supplied by the laser but to reduce the difference between the temperature of the powder not yet scanned and the temperature of the powder previously scanned.

This argument is not persuasive. The fact that applicant has recognized another advantage which would flow naturally from following the suggestion of the prior art cannot be the basis for patentability when the differences would otherwise be obvious. *Ex Parte Obiaya* 227 USPQ 58, 60.

Furthermore, DECKARD misuses the word "sintering". DECKARD describes sintering in liquid phase. See, for example, col. 8, lines 1-5 of DECKARD.

This argument is not persuasive. DECKARD was not cited to teach the type of sintering. Rather, DECKARD was cited to teach preheating prior to sintering.

5. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

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A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

6. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Christopher A. Fiorilla whose telephone number is 703-308-0674. The examiner can normally be reached on M-F, 6:30am-3:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Steven P. Griffin can be reached on 703-308-1164. The fax phone numbers for the organization where this application or proceeding is assigned are 703-305-7718 for regular communications and 703-305-3599 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-0651.



Christopher A. Fiorilla
Primary Examiner
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